

AMENDMENTS TO THE CLAIMS

Claims 1-17 (Canceled)

Claim 18 (New) A speaker device comprising:

- a housing having an opening portion;
- a vibration system member for vibrating to generate sound;
- a support system member connected to the housing and for supporting the vibration system member in a manner which allows the vibration system member to vibrate;
- a first magnetic circuit disposed inside the housing and having a first magnet provided on a surface thereof facing the opening portion, and a first yoke provided lateral to the first magnet; and
- a second magnetic circuit having a second magnet disposed inside the housing and facing the first magnet via a gap, and a second yoke provided lateral to the second magnet,

wherein a magnetic gap is formed in at least one of an interval between a side surface of the first magnet and the first yoke in the first magnetic circuit and an interval between a side surface of the second magnet and the second yoke in the second magnetic circuit,

the vibration system member includes:

- a first voice coil;
- a first voice coil bobbin provided to dispose the first voice coil in the magnetic gap; and
- a non-magnet member made of a magnetic material which does not include a magnet, and connected directly or indirectly to the first voice coil bobbin so that the non-magnet member is disposed in the gap between the first magnet and the second magnet.

Claim 19 (New) The speaker device according to claim 18, wherein

the vibration system member further includes a diaphragm at least a portion of which is composed of the non-magnet member,

the first voice coil bobbin is fixed to the diaphragm, and
the support system member supports the diaphragm in the gap in a manner
which allows the diaphragm to vibrate.

Claim 20 (New) The speaker device according to claim 18, wherein

the second magnetic circuit further includes:

a magnetic plate fixed to a surface facing the opening portion of the
second magnet,

the second yoke is disposed lateral to the second magnet and the magnetic
plate, and forms a magnetic gap between the second magnet and a side surface of the
magnetic plate,

the vibration system member further includes a diaphragm disposed,
facing a surface facing the opening portion of the housing of the second magnetic circuit,

the first voice coil bobbin connects the diaphragm and the non-magnet
member via the magnetic gap formed in the second magnetic circuit, and

the first voice coil is disposed in a magnetic gap formed in the second
magnetic circuit.

Claim 21 (New) The speaker device according to claim 20, wherein

the first magnetic circuit further includes a magnetic plate fixed to a
surface facing inside of the housing of the first magnet,

the first yoke is disposed lateral to the first magnet and the magnetic plate,
and forms a magnetic gap between the first magnet and a side surface of the magnet
plate, and

the vibration system member further includes:

a second voice coil; and

a second voice coil bobbin fixed to the non-magnet member and for
disposing the second voice coil in the magnetic gap formed in the first magnetic circuit.

Claim 22 (New) The speaker device according to claim 18, wherein

the second magnetic circuit further includes:

a magnetic plate fixed to a surface facing the opening portion of the second magnet,

the second yoke is disposed lateral to the second magnet and the magnetic plate, and forms a magnetic gap between the second magnet and a side surface of the magnetic plate,

the vibration system member further includes:

a diaphragm disposed, facing a surface facing the opening portion of the housing of the second magnetic circuit; and

a connection member for connecting the diaphragm and the non-magnet member via the magnetic gap formed in the second magnetic circuit, and

the first voice coil bobbin disposes the first voice coil in the magnetic gap formed in the first magnetic circuit.

Claim 23 (New) The speaker device according to claim 18, wherein
the first and second magnetic circuits have the same structure, and
the second magnetic circuit and the first magnetic circuit are arranged symmetrically about the non-magnet member.

Claim 24 (New) The speaker device according to claim 23, wherein
the vibration system member further includes:
a second voice coil; and
a second voice coil bobbin connected directly or indirectly to the non-magnet member and for disposing the second voice coil in the magnetic gap formed in the first magnetic circuit,
the first voice coil bobbin disposes the first voice coil in the magnetic gap formed in the second magnetic circuit.

Claim 25 (New) The speaker device according to claim 18, wherein
the first magnetic circuit further includes:
a magnetic plate fixed to a surface facing inside of the housing of the first magnet; and

a third magnet fixed to a surface facing inside of the housing of the magnetic plate, and

the first yoke is provided to form a magnetic gap between the first yoke and a side surface of the magnetic plate, and

the first magnet and the third magnet are magnetized in directions opposite to each other, the directions being vibration directions of the vibration system member.

Claim 26 (New) The speaker device according to claim 18, wherein

the second magnetic circuit further includes:

a magnetic plate fixed to a surface facing the opening portion of the housing of the second magnet; and

a third magnet fixed to a surface facing the opening portion of the housing of the magnetic plate, and

the second yoke is provided to form a magnetic gap between the second yoke and a side surface of the magnetic plate, and

the second magnet and the third magnet are magnetized in directions opposite to each other, the directions being vibration directions of the vibration system member.

Claim 27 (New) The speaker device according to claim 18, wherein

the first magnetic circuit further includes:

a magnetic plate fixed to a surface facing inside of the housing of the first magnet,

the first yoke is provided to form a magnetic gap between the first yoke and a side surface of the magnetic plate, and

the first magnet is magnetized in a vibration direction of the vibration system member.

Claim 28 (New) The speaker device according to claim 18, wherein

the second magnetic circuit includes:

a magnetic plate fixed to a surface facing the opening portion of the second magnet,

the second yoke is provided to form a magnetic gap between the second yoke and a side surface of the magnetic plate, and

the second magnet is magnetized in a vibration direction of the vibration system member.

Claim 29 (New) The speaker device according to claim 18, where

the speaker device comprises a plurality of magnetic circuit units each composed of the first and second magnetic circuits,

the vibration system member includes:

the same number of the first voice coils as the number of the magnetic circuit units;

the same number of the first voice coil bobbins as the number of the magnetic circuit units, each first voice coil being disposed in the magnetic gap of the corresponding magnetic circuit unit; and

a diaphragm fixed to each first voice coil bobbin and at least a portion of which is composed of a non-magnet member.

Claim 30 (New) The speaker device according to claim 18, further comprising:

a position detecting section for detecting a position of the vibration system member; and

a control section for controlling a vibration of the vibration system member by applying to the first voice coil a signal obtained by adding a direct current component to an acoustic signal based on the position of the vibration system member detected by the position detecting section so that a center of an amplitude of the non-magnet member is at a balanced position of a magnetic field formed in the gap.

Claim 31 (New) The speaker device according to claim 30, wherein the position detecting section is a laser displacement gauge.

Claim 32 (New) The speaker device according to claim 18, further comprising:
a frame fixed to the support system member,
wherein a speaker unit composed of the vibration system member, the support system member, the first and second magnetic circuits, and the frame, is attached to the opening portion by the frame being fixed to the opening portion.

Claim 33 (New) A car comprising:
the speaker device according to claim 18; and
a car body inside which the speaker device is disposed.

Claim 34 (New) A video device comprising:
the speaker device according to claim 18; and
a device housing inside which the speaker device is disposed.